इंटरनेट मानक

Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

"जानने का अधिकार, जीने का अधिकार"
Mazdoor Kisan Shakti Sangathan
"The Right to Information, The Right to Live"

"पुराने को छोड नये के तरफ"
Jawaharlal Nehru
"Step Out From the Old to the New"

IS 10714-1 (2006): Technical drawings - General Principles of Presentation, Part 1: Introduction and Index [PGD 24: Drawings]

"ज्ञान से एक नये भारत का निर्माण"
Satyanarayan Gangaram Pitroda
"Invent a New India Using Knowledge"

Act Number 22 of 2005
The Indian Parliament
RIGHT TO INFORMATION

Made Available By
Public.Resource.Org

"ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है"
Bhartṛhari—Nītiśatakam
"Knowledge is such a treasure which cannot be stolen"

BLANK PAGE

BRUTUM FULMEN

IGNORANTIA
JURIS
NON EXCUSAT

PROTECTED BY COPYRIGHT

IS 10714 (Part 1) : 2006
ISO 128-1 : 2003

भारतीय मानक

तकनीकी ड्राइंग — प्रस्तुतीकरण के सामान्य सिद्धान्त

भाग 1 परिचय और सारणी

Indian Standard

TECHNICAL DRAWINGS — GENERAL PRINCIPLES OF PRESENTATION

PART 1 INTRODUCTION AND INDEX

ICS 01.100.01

© BIS 2006

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

April 2006

Price Group 5

Drawings Sectional Committee, PG 24

NATIONAL FOREWORD

This Indian Standard (Part 1) which is identical with ISO 128-1 : 2003 'Technical drawings — General principles of presentation — Part 1 : Introduction and index' issued by the International Organization for Standardization (ISO) was adopted by the Bureau of Indian Standards on the recommendation of the Drawings Sectional Committee and approval of the Production and General Engineering Division Council.

ISO 128 was published in 1982 and was accordingly adopted as IS 10714 : 1983. ISO 128 : 1982 was withdrawn and published again in several parts. In view of this, Drawings Sectional Committee decided to adopt ISO 128-1 : 2003 as IS 10714 (Part 1).

This standard specifies the graphical representation of objects on technical drawings with the aim of facilitating the international exchange of information on drawings and ensuring their uniformity in a comprehensive system relating to several technical functions.

It is applicable for all kinds of technical drawings, including, for example, those used in mechanical engineering and construction (architectural, civil engineering, shipbuilding, etc). It is applicable to both manual and computer-based drawings. It is not applicable to three-dimensional CAD models.

The other standards in this series are:

IS 10714 (Part 20) : 2001	Technical drawings — General principles of presentation: Part 20 Basic conventions for lines
IS 10714 (Part 21) : 2001	Technical drawings — General principles of presentation: Part 21 Preparation of lines by CAD systems

The text of ISO Standard has been approved as suitable for publication as an Indian Standard without deviations. Certain conventions are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

a) Wherever the words, 'International Standard' appear, referring to this standard, they should be read as 'Indian Standard'.

b) Comma (,) has been used as a decimal marker while in Indian Standards, the current practice is to use a point (.) as the decimal marker.

In this adopted standard, reference appears to certain International Standards for which Indian Standards also exist. The corresponding Indian Standards which are to be substituted in their places are listed below along with their degree of equivalence for the editions indicated:

International Standard	*Corresponding Indian Standard*	*Degree of Equivalence*
ISO 31-1 : 1992 Quantities and units — Part 1 : Space and time	IS 1890 (Part 1) : 1995 Quantities and units: Part 1 Space and time	Identical
ISO 129 : 1985 (all parts) Technical drawings — Indication of dimensions and tolerances	IS 11669 : 1986 General principles of dimensioning on technical drawings	do
ISO 286-1 : 1988 ISO system of limits and fits — Part 1 : Bases of tolerances, deviations and fits	IS 919 (Part 1) : 1993 ISO system of limits and fits: Part 1 Bases of tolerances, deviations and fits	do

International Standard	*Corresponding Indian Standard*	*Degree of Equivalence*
ISO 1000 : 1992 SI units and recommendations for the use of their multiples and of certain other units	IS 10005 : 1994 SI units and recommendations for the use of their multiples and of certain other units	Identical
ISO 1101 : 1983 Geometrical Product Specifications (GPS) — Geometrical tolerancing — Tolerances of form, orientation, location and run-out	IS 8000 (Part 1) : 1985 Geometrical tolerancing on technical drawings: Part 1 Tolerances of form, orientation, location and run-out and appropriate geometrical definitions (*first revision*)	do
ISO 1302 : 1978[1] Technical drawings — Method of indicating surface texfure on drawings	IS 10719 : 1983 Method of indicating surface texture on technical drawings	do
ISO 2692 : 1988 Technical drawings — Geometrical tolerancing — Maximum material principle	IS 8000 (Part 2) : 1992 Technical drawings — Geometrical tolerancing: Part 2 Maximum material principle (*first revision*)	do
ISO 2768-1 : 1989 General tolerances — Part 1 : Tolerances for linear and angular dimensions without individual tolerance indications	IS 2102 (Part 1) : 1993 General tolerances: Part 1 Tolerances for linear and angular dimensions without individual tolerance indications	do
ISO 2768-2 : 1989 General tolerances — Part 2 : Geometrical tolerances for features without Individual tolerance indications	IS 2102 (Part 2) : 1993 General tolerances: Part 2 Geometrical tolerances for features without individual tolerance indications	do
ISO 3040 : 1990 Technical drawings — Dimensioning and tolerancing — Cones	IS 10718 : 1993 Technical drawings — Dimensioning and tolerancing — Cones	do
ISO 3098-0 : 1997 Technical product documentation — Lettering — Part 0 : General requirements	IS 9609 (Part 0) : 2001 Technical product documentation — Lettering: Part 0 General requirements	do
ISO 5455 : 1979 Technical drawings — Scales	IS 10713 : 1983 Scales for use in technical drawings	do
ISO 5457 : 1999 Technical product documentation — Sizes and layout of drawing sheets	IS 10711 : 2001 Technical product documentation — Sizes and layout of drawing sheets	do
ISO 5458 : 1998 Geometrical product specifications (GPS) — Geometrical tolerancing — Positioning tolerancing	IS 13099 : 2001 Geometrical product specifications (GPS) — Geometrical tolerancing — Positioning tolerancing	do
ISO 5459 : 1981 Technical drawings — Geometrical tolerancing datum and datum systems for geometrical tolerances	IS 10721 : 1983 Datum and Datum systems for geometrical tolerancing on technical drawings	do

---

[1] Since revised in 2002.

International Standard	*Corresponding Indian Standard*	*Degree of Equivalence*
ISO 6428 : 1982 Technical drawings — Requirements for micro copying	IS 10164 : 1985 Requirements to execute technical drawings for micro copying	Identical
ISO 6433 : 1981 Technical drawings — Item references	IS 10712 : 1983 Presentation of item references on technical drawings	do
ISO 7083 : 1983 Technical drawings — Symbols for Geometrical tolerancing — Proportions and dimensions	IS 11158 : 1984 Proportions and dimensions of symbols for geometrical tolerancing used in technical drawings	do
ISO 7200 : 1984 Technical drawings — Title blocks	IS 11665 : 1985 Technical drawings — Title blocks	do
ISO 7573 : 1983 Technical drawings — Item lists	IS 11666 : 1985 Technical drawings — Item list	do
ISO 8015 : 1985 Technical drawings — Fundamental tolerancing principle	IS 12160 : 1987 Technical drawings — Fundamental tolerancing principle	do
ISO 8785 : 1998 Geometrical product specifications (GPS) — Surface imperfections — Terms, definitions and parameters	IS 15264 : 2002 Geometrical product specifications (GPS) — Surface imperfections — Terms, definitions and parameters	do
ISO 9431 : 1990 Construction drawings — Spaces for drawing and for text, and title blocks on drawing sheets	IS 15093 : 2002 Construction drawings — Spaces for drawing and for text, and title blocks on drawing sheets	do
ISO 10135 : 1994 Technical drawings — Simplified representation of moulded, cast and forged parts	IS 14722 : 1999 Technical drawings — Simplified representation of moulded cast and forged parts	do
ISO 10209-1 : 1992 Technical product documentation vocabulary — Part 1 : Terms relating to technical drawings: General and types of drawings	IS 8930 (Part 1) : 1995 Technical product documentation vocabulary: Part 1 Terms relating to technical drawings: General and types of drawings	do

The Committee responsible for formulation of this standard has reviewed the provisions of the following International Standards for which references have been made in the text, and has decided that they are acceptable for use in conjunction with this standard:

International Standard	*Title*
ISO 6284 : 1996	Construction drawings — Indication of limit deviations
ISO 8560	Technical drawings — Construction drawings — Representation of modular sizes, and grids
ISO 11091 : 1994	Construction drawings — Landscape drawing practice
ISO 13715	Technical drawings — Edges of undefined shape — Vocabulary and indications
ISO 15785 : 2002	Technical drawings — Symbolic presentation and indication of adhesive, fold and pressed joint
ISO 15787 : 2001	Technical product documentation — Heat treated ferrous parts — Presentation and indications
ISO 16016 : 2000	Technical product documentation — Protection notices for restricting the use of documents and products

Indian Standard

TECHNICAL DRAWINGS — GENERAL PRINCIPLES OF PRESENTATION

PART 1 INTRODUCTION AND INDEX

1 Scope

This part of ISO 128 gives general rules for the execution of technical drawings, as well as presenting the structure of, and an index for, the other parts of ISO 128. In all, ISO 128 specifies the graphical representation of objects on technical drawings with the aim of facilitating the international exchange of information on drawings and ensuring their uniformity in a comprehensive system relating to several technical functions. This part of ISO 128 is applicable to all kinds of technical drawings, including, for example, those used in mechanical engineering and construction (architectural, civil engineering, shipbuilding, etc.). It is applicable to both manual and computer-based drawings. It is not applicable to three-dimensional CAD models.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 31-1, *Quantities and units — Part 1: Space and time*

ISO 129 (all parts), *Technical drawings — Indication of dimensions and tolerances*

ISO 286-1, *ISO system of limits and fits — Part 1: Bases of tolerances, deviations and fits*

ISO 1000, *SI units and recommendations for the use of their multiples and of certain other units*

ISO 1101 1), *Geometrical Product Specifications (GPS) — Geometrical tolerancing — Tolerances of form, orientation, location and run-out*

ISO 1302, *Geometrical Product Specifications (GPS) — Indication of surface texture in technical product documentation*

ISO 2553, *Welded, brazed and soldered joints — Symbolic representation on drawings*

ISO 2692 2), *Technical drawings — Geometrical tolerancing — Maximum material principle*

ISO 2768-1, *General tolerances — Part 1: Tolerances for linear and angular dimensions without individual tolerance indications*

---

1) To be published. (Revision of ISO 1101:1983)

2) To be published. (Revision of ISO 2692:1988)

ISO 2768-2, *General tolerances — Part 2: Geometrical tolerances for features without individual tolerance indications*

ISO 3040, *Technical drawings — Dimensioning and tolerancing — Cones*

ISO 3098-0, *Technical product documentation — Lettering — Part 0: General requirements*

ISO 5455, *Technical drawings — Scales*

ISO 5457, *Technical product documentation — Sizes and layout of drawing sheets*

ISO 5458, *Geometrical Product Specifications (GPS) — Geometrical tolerancing — Positional tolerancing*

ISO 5459, *Technical drawings — Geometrical tolerancing — Datums and datum-systems for geometrical tolerances*

ISO 6284, *Construction drawings — Indication of limit deviations*

ISO 6428, *Technical drawings — Requirements for microcopying*

ISO 6433, *Technical drawings — Item references*

ISO 7083, *Technical drawings — Symbols for geometrical tolerancing — Proportions and dimensions*

ISO 7200[3], *Technical drawings — Title blocks*

ISO 7573:1983, *Technical drawings — Item lists*

ISO 8015, *Technical drawings — Fundamental tolerancing principle*

ISO 8560, *Technical drawings — Construction drawings — Representation of modular sizes, lines and grids*

ISO 8785, *Geometrical Product Specification (GPS) — Surface imperfections — Terms, definitions and parameters*

ISO 9431, *Construction drawings — Spaces for drawing and for text, and title blocks on drawing sheets*

ISO 10135, *Technical drawings — Simplified representation of moulded, cast and forged parts*

ISO 10209-1, *Technical product documentation — Vocabulary — Part 1: Terms relating to technical drawings: General and types of drawings*

ISO 11091, *Construction drawings — Landscape drawing practice*

ISO 13715, *Technical drawings — Edges of undefined shape — Vocabulary and indications*

ISO 15785, *Technical drawings — Symbolic presentation and indication of adhesive, fold and pressed joint*

ISO 15787, *Technical product documentation — Heat-treated ferrous parts — Presentation and indications*

ISO 16016, *Technical product documentation — Protection notices for restricting the use of documents and products*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 10209-1 apply.

---

[3] To be published. (Revision of ISO 7200:1984)

4 Arrangement of the ISO 128 series

The various parts of ISO 128 cover specific subjects. See

- the parts up to ISO 128-19 for basics,
- ISO 128-20 to 128-29 for lines,
- ISO 128-30 to 128-39 for views,
- ISO 128-40 to 128-49 for sections,
- ISO 128-50 to 128-59 for the representation of areas on sections, and
- ISO 128-60 to 128-69 for additional conventions.

Within these subject groupings, parts consist of requirements and applications for the different industrial branches — a concept allowing the integration of future developments. A matrix of the structure of ISO 128 (excluding this part of ISO 128) is given in Table 1. Only those parts existent at the time of publication of this part of ISO 128 are indicated by their numbers.

Table 1 — Matrix of structure of ISO 128 (numbers refer to part numbers)

Subject	**Application**				
	Basic conventions	Special applications	Construction	Mechanical engineering	Shipbuilding
Lines	20	21, 22	23	24	25
Views	30	—	30	34	—
Cuts and sections	40	—	—	44	—
Areas on section	50	—	50	50	50

5 Fundamental requirements

Technical drawings are a specific type of communication. Technical drawings shall comply with the following principles.

a) **Unambiguous and clear.** For any feature of a drawing, there shall be only one interpretation. It should be easy to understand for each involved person.

b) **Complete.** A technical drawing shows the end condition of the represented object for a specific function. The content shall be complete to serve this function, for example, for the manufacture of a part and the verification of its specifications. Only indicated requirements on the drawing or in the related documentation are manufactured or verified.

c) **To scale.** The outlines and details of a representation should be proportional to the represented part. (For scales, see ISO 5455.) Nevertheless, values for the dimensions of an object shall not be determined or scaled directly from the drawing.

d) **Appropriate for duplication and copying.** To provide a high quality product when plotting, copying or microcopying and reproducing, these shall be done in accordance with ISO 6428.

e) **Language independent.** It is preferable that drawings be language independent. Words should be used only within the title block or where it is impracticable to present information graphically.

f) **In accordance with standards.** The applied International Standard shall be specified on the drawing in accordance with that standard. Additional related documents necessary for the interpretation of the drawing shall be specified.

Assembly drawings shall have an associated item list in accordance with ISO 7573, which may be included on the drawing itself or presented as a separate document. The release procedures for a drawing and any changes on released drawings shall be clearly documented.

6 Basic entities of technical drawings

6.1 General

A technical drawing may consist of the following elements:

- drawing sheet layout in accordance with ISO 5457;
- title block in accordance with ISO 7200 for mechanical engineering drawings or ISO 9431 for construction drawings;
- representation of the object(s) in accordance with the ISO 128 series;
- dimensioning in accordance with the ISO 129 series;
- lettering in accordance with ISO 3098-0;
- item references in accordance with ISO 6433;
- quantities, units and symbols in accordance with ISO 31-1 and ISO 1000;
- protection notice in accordance with ISO 16016.

6.2 Mechanical engineering

The geometrical specifications shall be in accordance with the rules of inherent standards as per the GPS matrix model (see ISO/TR 14638), including

- ISO 286-1 and ISO 8015 for the indication of linear dimensioning and tolerancing,
- ISO 1101, ISO 2692, ISO 5458 and ISO 7083 for the indication of geometrical dimensioning and tolerancing,
- ISO 1302 and ISO 8785 for the indication of surface texture and surface imperfections,
- ISO 3040 for the indication of cones, and
- ISO 5459 for the indication of datums and datum systems.

6.3 Construction engineering

The geometrical specifications shall be in accordance with the rules of inherent standards such as

- ISO 6284 for the indication of limit deviations,
- ISO 8560 for the indication of modular sizes, lines and grids, and
- ISO 11091 for landscape drawing practice.

6.4 Materials and processes

The geometrical specifications shall be in accordance with the rules of inherent standards applicable in different branches, such as

- ISO 2553 for the indication of welded, brazed and soldered joints,
- ISO 2768 for the indication of general tolerances for machined products,
- ISO 10135 for the indication of moulded products,
- ISO 13715 for the indication and tolerancing of edges,

- ISO 15785 for the indication of adhesive, fold and pressed joints, and
- ISO 15787 for the indication of heat treatment.

7 Using ISO 128

EXAMPLE For the execution of mechanical engineering drawings, the following parts of ISO 128 would be used:

- ISO 128-20 and ISO 128-24 for the types of lines to be used to express specific characteristics;
- ISO 128-30 and ISO 128-34 for the manner in which views on an object are arranged and for special rules or simplifications useful in drafting;
- ISO 128-40 and ISO 128-44 for the manner in which cuts and sections are to be made;
- ISO 128-50 for rules for the representation of areas on cuts and sections.

Annex A
(informative)

Index of subject topics

Table A.1 presents a multilingual index of the subject topics covered in the various parts of ISO 128.

Table A.1 — Index to ISO 128

Terme/topic — Language				Part, clause/subclause
English	**French**	**German**	**Russian**	
adjacent parts	parties contiguës	angrenzende Teile	примыкающие (пограничное) изделия	ISO 128-34, 6
arc arrow	arc fléché	gebogener Pfeil	дугообразная размерная линия	ISO 128-30, C.3
arrow — arc arrow — reference arrow — section arrow	fléché — arc fléché — repère fléché — repère fléché de coupe et de section	Pfeil — gebogener Pfeil — Bezugspfeil — zur Kennzeichnung der Schnittebene	стрелка — дугообразная размерная линия — стрелка ссылочная — указательная стрелка сечений/разрезов	 ISO 128-30, C.3 ISO 128-30, C.2 ISO 128-40, A.2.2
bend lines	traits de courbures	Biegelinien	волнистые линии	ISO 128-34, 13
blanks	ébauches	Rohteile	заготовки	ISO 128-34, 17
calculation of line elements	calcul des éléments de trait	Berechnung der Linienelemente	расчет элементов линий	ISO 128-21, 4
choice of views	choix des vues	Auswahl der Ansichten	выбор видов	ISO 128-30, 5
colours (of lines)	couleurs (de traits)	Farben (von Linien)	цвета (линий)	ISO 128-20, 6
combination of lines	combinaison de traits	Variationen von Linien	комбинации линий	ISO 128-20, 3.3
configuratio[illegible] lines	configuration des traits	Konfiguration der Linien	конфигурации линий	ISO 128-20, 4.3
curves	courbes	Kurven	кривые	ISO 128-34, 14
cut	coupe	Schnitt	разрез	ISO 128-40, 3.3
cut and section arrow	repères fléchés de coupes et de sections	Pfeil zur Kennzeichnung der Schnittebene	стрелка разреза и сечения	ISO 128-40, A.2
cuts of symmetrical parts	coupes/sections de pièces symétriques	Schnitte symmetrischer Teile	разрезы симметричных изделий	ISO 128-40, 6
cutting line	ligne de coupe	Schnittlinie	линия секущей плоскости	ISO 128-40, 3.2
cutting plane — definition — on mechanical engineering drawings	plan de coupe — définition — dans des dessins industriels	Schnittebene — Definition — in Zeichnungen mechanischer Technik	плоскость разреза — определение — на машиностроительных чертежах	 ISO 128-40, 3.1 ISO 128-44, 5

Table A.1 (*continued*)

Terme/topic — Language				Part, clause/subclause
English	**French**	**German**	**Russian**	
designation (of lines)	désignation (de traits)	Bezeichnung (von Linien)	назначение (линий)	ISO 128-20, 7
draughting of lines	tracé de traits	Zeichnen von Linien	вычерчивание линий	ISO 128-20, 5
enlarged features	détails représentés à plus grande échelle	vergrösserte Geometrieelemente	выносные элементы (увеличенные)	ISO 128-34, 11
extra wide continuous outlines	contours en trait continu extra-fort	besonders breiter Umriss	толстые сплошные линии контуров	ISO 128-50, 7
fasteners	éléments de fixation	Befestigungsmittel	крепеж	ISO 128-44, 4
fibre directions	directions du fibrage	Faserrichtungen	направление волокон	ISO 128-34, 20
finished parts	pièces finies	fertige Formen	готовые изделия	ISO 128-34, 17
first angle projection method	méthode de projection du premier dièdre	Projektionsmethode 1	метод проекции первого угла	ISO 128-30, Annex A
half cuts/half sections	demi-coupes/demi-sections	Halbschnitte	неполные разрезы/сечения	ISO 128-40, 3.5
half sections of symmetrical parts	coupes/sections de pièces symétriques	Halbschnitte symmetrischer Teile	неполные сечения симметричных изделий	ISO 128-40, 6
hatching	hachures	Schraffur	штриховка	ISO 128-50, 5
indication of contours	indication des contours	Andeuten von Umrissen	изображение контуров	ISO 128-34, 6
indication of instructions	inscription des instructions	Eintragung der Anforderungen	надписи на полках выносных линий	ISO 128-22, 6
initial outlines	contour primitif d'un objet	ursprüngliche Umrisse	контуры заготовок	ISO 128-34, 12
interrupted views	vues interrompues	unterbrochene Ansichten	виды с разрывами	ISO 128-34, 9
intersections	intersections	Durchdringungen	пересечения	ISO 128-34, 7
junctions (of lines)	jonctions (de traits)	(Linien-)Kreuzungen	соединения (линий)	ISO 128-20, 5.2
leader line	trait de rappel de cote	Hinweislinie	выносная линия	ISO 128-22, 3.1
line	trait	Linie	линия	ISO 128-20, 2.1
line dimensions	dimensions des traits	Linienmaße	размеры линий	ISO 128-20, 4
line element	élément de trait	Linienelement	элемент линии	ISO 128-20, 2.2
line groups	groupes de traits	Liniengruppen	группы линий	
— on mechanical engineering drawings	— dans les dessins industriels	— in Zeichnungen mechanischer Technik	— на машиностроительных чертежах	ISO 128-24, 5
— on shipbuilding drawings	— dans les dessins de construction navale	— in Zeichnungen des Schiffbaus	— на судостроительных чертежах	ISO 128-25, 5
line segment	segment de trait	Liniensegment	сегмент линии	ISO 128-20, 2.3

Table A.1 (*continued*)

Terme/topic — Language				Part, clause/subclause
English	**French**	**German**	**Russian**	
line widths	largeurs de traits	Linienbreiten	ширина линий	
— basic conventions	— conventions de base	— Grundlagen	— основные условности	ISO 128-20, 4.1
— on construction drawings	— dans les dessins de construction et de génie civil	— in Zeichnungen des Bauwesens	— на строительных чертежах	ISO 128-23, 5
— on mechanical engineering drawings	— dans les dessins industriels	— in Zeichnungen mechanischer Technik	— на машиностроительных чертежах	ISO 128-24, 5
— on shipbuilding drawings	— dans les dessins de construction navale	— in Zeichnungen des Schiffbaus	— на судостроительных чертежах	ISO 128-25, 5
local cuts/sections	coupes/sections locales	Teilschnitte	местные разрезы/сечения	ISO 128-40, 7
local views	vues locales	Teilansichten	местные виды	ISO 128-34, 5
mirror-image parts	pièces symétriques	spiegelbildlich gleiche Teile	изделия в зеркальном изображении	ISO 128-34, 22
movable parts	pièces mobiles	bewegliche Teile	подвижные изделия	ISO 128-34, 16
partial view of symmetrical parts	vues partielles de parties symétriques	Teilansichten symmetrischer Teile	частичный вид симметричных изделий	ISO 128-30, 6.2
partial views	vues partielles	Teilansichten	частичные виды	ISO 128-30, 6
parts with two or more identical views or cuts/sections	pièces présentant deux vues/ coupes ou sections identiques ou davantage	Teile mit mehreren gleichen Ansichten oder Schnitten	изделия с двумя или более идентичными видами или разрезами/сечениями	ISO 128-34, 21
pattern (surface)	texture superficielle	(Oberflächen-)Muster	рисунок (поверхности)	ISO 128-34, 19
preparation of lines by CAD system	préparation des traits par systèmes de CAO	Ausführung von Linien mit CAD-Systemen	подготовка линий с помощью САПР	ISO 128-21
presentation of leader lines	représentation des traits de rappel de cote	Ausführung von Hinweislinien	изображение выносных линий	ISO 128-22, 4
presentation of reference lines	représentation des traits de référence	Ausführung von Bezugslinien	изображение полок выносных линий	ISO 128-22, 5
projection method	méthode de projection du	Projektionsmethode	метод проекции	
— first angle	— premier dièdre	— 1	— первого угла	ISO 128-30, Annex A
— third angle	— troisième dièdre	— 3	— третьего угла	ISO 128-30, Annex B
reference arrow	repère fléché	Bezugspfeil	стрелка ссылочная	ISO 128-30, C.2
reference line	trait de référence	Bezugslinie	полка	ISO 128-22, 3.2
removed sections	sections sorties	herausgezogene Schnitte	выносные сечения	ISO 128-44, 6
repeated features	éléments répétitifs	wiederkehrende Geometrieelemente	повторяющиеся элементы	ISO 128-34, 10

Table A.1 (*continued*)

Terme/topic — Language				Part, clause/subclause
English	**French**	**German**	**Russian**	
transparent objects	objets transparents	durchsichtige Gegenstände	прозрачные объекты	ISO 128-34, 15
types of lines	types de traits	Linienarten	типы линий	
— on construction drawings	— dans les dessins de construction et de génie civil	— in Zeichnungen des Bauwesens	— на строительных чертежах	ISO 128-23, 4
— on mechanical engineering drawings	— dans les dessins industriels	— in Zeichnungen der mechanischen Technik	— на машиностроительных чертежах	ISO 128-24, 4
— on shipbuilding drawings	— dans les dessins de construction navale	— in Zeichnungen des Schiffbaus	— на судостроительных чертежах	ISO 128-25, 4
views	vues	Ansichten	виды	
— choice of	— choix des	— Wahl von	— выбор	ISO 128-30, 5
— identical	— Identiques	— identische	— идентичные	ISO 128-34, 21
— identification of	— Identification des	— Bezeichnung von	— идентификация	ISO 128-30, 4
— interrupted	— Interrompues	— unterbrochene	— прерывистые	ISO 128-34, 9
— partial	— Partielles	— Teil-	— частичные	ISO 128-30, 6.2
— special positions	— Positions particulières	— besondere Lagen	— особые положения	ISO 128-30, 7

Bureau of Indian Standards

BIS is a statutory institution established under the *Bureau of Indian Standards Act*, 1986 to promote harmonious development of the activities of standardization, marking and quality certification of goods and attending to connected matters in the country.

Copyright

BIS has the copyright of all its publications. No part of these publications may be reproduced in any form without the prior permission in writing of BIS. This does not preclude the free use, in the course of implementing the standard, of necessary details, such as symbols and sizes, type or grade designations. Enquiries relating to copyright be addressed to the Director (Publications), BIS.

Review of Indian Standards

Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Catalogue' and 'Standards : Monthly Additions'.

This Indian Standard has been developed from Doc : PG 24/MGP 24 (0514).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110 002
Telephones : 2323 0131, 2323 3375, 2323 9402 *Website* : www.bis.org.in

Regional Offices : *Telephones*

Central	:	Manak Bhavan, 9 Bahadur Shah Zafar Marg NEW DELHI 110 002	2323 7617 2323 3841
Eastern	:	1/14 C. I. T. Scheme VII M, V. I. P. Road, Kankurgachi KOLKATA 700 054	2337 8499, 2337 8561 2337 8626, 2337 9120
Northern	:	SCO 335-336, Sector 34-A, CHANDIGARH 160 022	260 3843 260 9285
Southern	:	C. I. T. Campus, IV Cross Road, CHENNAI 600 113	2254 1216, 2254 1442 2254 2519, 2254 2315
Western	:	Manakalaya, E9 MIDC, Marol, Andheri (East) MUMBAI 400 093	2832 9295, 2832 7858 2832 7891, 2832 7892

Branches : AHMEDABAD. BANGALORE. BHOPAL. BHUBANESHWAR. COIMBATORE. FARIDABAD. GHAZIABAD. GUWAHATI. HYDERABAD. JAIPUR. KANPUR. LUCKNOW. NAGPUR. PARWANOO. PATNA. PUNE. RAJKOT. THIRUVANANTHAPURAM. VISAKHAPATNAM.

Printed at New India Printing Press, Khurja, India